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ABSTRACT

Experience-based training and development (EBTD), also known as Outdoor Management Development (OMD) in Great Britain and corporate adventure training (CAT) in Canada and Australia, is a field that uses adventure activities to bring beneficial change to organizations, primarily corporations. Activities used in EBTD and CAT programs include socialization games, group initiatives, ropes courses, outdoor pursuits, and other adventure activities. Potential benefits of EBTD and CAT programs include improved workplace competencies of individual employees; interpersonal improvements affecting work units; and systemwide improvements to corporate values, climate, and mission. However, EBTD and CAT have done a poor job of servicing patrons, have failed to match providers' programs to customers' needs, and now face a credibility crisis. In addition, research evidence of program effectiveness is limited. This paper summarizes research from the 1980s and 1990s on the benefits of EBTD and CAT. The studies evaluated the effects of various types of adventure activities on team building, group problem solving, self-concept, employee morale and attitudes, work behaviors, managers' risk-taking propensity, communication skills, conflict resolution, transfer of training to the work environment, long-term retention of team training, and organizational climate. Eight research problems and concerns related to studying CAT or EBTD programs are discussed, and guidelines are offered for conducting ethical research. Contains 53 references. (SV)

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A Research Summary for Corporate Adventure Training (CAT) and Experience-Based Training and Development (EBTD)

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A Research Summary for Corporate Adventure Training (CAT) and Experience-Based Training and Development (EBTD)

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This paper is a review of research in Corporate Adventure Training (CAT) and Experience-Based Training and Development (EBTD); a summary of a number of research studies in CAT and EBTD conducted through the Corporate Adventure Training Institute and other researchers; and, recommendations for future research in this growing field of outdoor education. The research results indicate corporate adventure training programs can be effective means of team building and other group development outcomes. The author gives a number of recommendations for future research including the need to investigate the program elements that contribute to overall program effectiveness.

Keywords: *Corporate adventure training, experience-based training and development, team building, group development, research recommendations.*

Background

Every year American corporations invest billions of dollars in general training and development programs for employees (Lawler, 1988). Millions of these dollars are being spent on Corporate Adventure Training (CAT) and Experience-Based Training and Development (EBTD) programs alone, and the growing numbers of providers and consumers of these programs are expected to increase steadily into the next century (Latteir, 1989). EBTD is the American term for this field in our related professions. It is also known as Outdoor Management Development (OMD) in Britain, as CAT in Canada and Australia, and by additional labels in many more nations around the world. These terms jointly describe a field which uses indoor and outdoor adventure activities to bring beneficial change to organizations (Gass, Goldman, & Priest, 1992). While the corporate client defines the majority, profit and non-profit agencies are also minority customers.

Activities used in EBTD and CAT programs tend to be classified into one of five groups: socialization games, group initiatives, ropes courses, outdoor pursuits, or other adventures (Agran, Garvey, Miner, & Priest, 1993). Socialization games are "ice-breakers" used to deinhibit people and familiarize them with one another. Group initiative tasks can be focused on team tools (one element of teamwork obtained by a simple task) or team tests (multiple elements of teamwork demonstrated in synergy by a complex task). Ropes or challenge courses can be high (belayed well above ground level) or low (spotted at ground level or just above). Outdoor pursuits can be activity-based (conducted anywhere) or setting-based (depended on a special location). Other adventures encompass those simulations or non-traditional exercises distantly associated with our related professions.

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These five classifications and their ten subgroups form the collective treatments that have been studied by researchers. Unfortunately, ambiguity over activity classifications (i.e., where some researchers have conflated ropes courses and group initiatives) has led to confused study outcomes and generalizations.

Benefits accrued from EBTD and CAT programs tend to be classified into one of three types: individual employees, management work units, and parent companies (Priest, Attarian, & Schubert, 1993). Intrapersonal workplace competencies such as enhanced self-confidence, leadership style, risk taking propensity, coping with fear and stress, decision making, and personal inspiration or commitment are examples of individual benefits (Beeby & Rathborn, 1982; Gahin & Chesteen, 1988; Williams, 1980). Interpersonal improvements in goal setting, team building, time management, conflict resolution, group problem solving, collaboration and cooperation are examples of work unit benefits (Creswick & Williams, 1979; Long, 1987; Kadel, 1988). Organizational upgrades to systems, structure, values and ethics, vision and mission, corporate climate, and motivational atmosphere benefit the company and result in the bottom line of bettering productivity, absenteeism and profits (Brathay Hall Trust, 1986; Fleming, 1987). Interactions of these three can further benefit the person, group or culture by increasing empowerment, trust and integrity, effective communication, environmental safety, judgment based on experience, and dealing with change and uncertainty (Mossman, 1982).

Like other outdoor adventure programs, EBTD and CAT tend to be classified into one of four kinds: recreation, education, development, and therapy. Recreational programs change the way people feel, by giving them fun or new energy through entertainment or enjoyment (e.g., a brief program offered as part of a company picnic). Educational programs change the way people think and feel, by providing them with new knowledge, awareness, or understanding of needs, concepts or perspectives (e.g., a short program at a retreat intended to demonstrate the importance of teamwork). Developmental programs change the way people act, think, and feel, by increasing their functional behaviors and offering new ways to conduct themselves (e.g., a general program aimed at building certain teams as part of organizational commitment to teamwork. Therapeutic programs change the way people cope, act, think, and feel, by decreasing dysfunctional behaviors and offering attractive alternatives to managing conflict and difficulty (e.g., a specific program aimed at repairing the negative interactions of particular team members who do not get along).

Unlike other fields, EBTD and CAT have done an extremely poor job of servicing our patrons. For years, we have failed to meet their needs. Corporations in search of therapeutic change for their dysfunctional teams react with reservation when given educational programs. Their oft heard comments are quoted in the popular press: "All this adventure stuff doesn't really work!" (Zemke, 1988). On the other hand, corporations seeking recreational fun and games are frequently irritated by the constant interruptions for developmental discussions. Participants commonly respond with "You're always trying to psychoanalyze us!" (Falvey, 1988). In summary, the CAT and EBTD field has a credibility crisis. This crisis stems from an ongoing failure to match providers' programs with customers' needs.

To add insult to injury, these failures are frequently repeated by well meaning but ill-equipped practitioners who lack the depth of facilitation competence to deliver an appropriate program. This is further compounded by choosing inappropriate activities to meet goals. By way of illustration, consider the overuse of unmodified high ropes or challenge courses (only an individual development tool) as the incorrect industry preference for team building (Priest, 1991). The result is that professional image suffers and good programs simply get lumped in with bad ones.

With all the money that is spent on CAT and EBTD, one would expect some scrutiny and skepticism. However, since these programs were first highlighted in the practitioner litera-

ture (Long, 1984; Long, 1987; Galagan, 1987; Gall, 1987), a growing opposition has been mounted against CAT and EBTD. Antagonists have claimed that these programs lack safety and quality control (Garvey, 1989; Miner, 1991), have questionable instructor qualifications (Knecht, 1983; Bank, 1985), and fail to transfer learning to the workplace (Roland, 1985; Zemke, 1988; Falvey, 1988).

To make matters worse, we are unable to argue to the contrary because our evidence is sorely limited. We have very little research, and the little we have holds poor generalizability (Rice, 1979; Roland, 1985; Rice, 1988; Darby, 1989). The remainder of this article summarizes a few of the early studies, conducted in the mid-1980s and 1990s, shares two dozen recent studies from one research center and concludes with a discussion of the future directions and concerns associated with researching CAT and EBTD program efficacy.

PAST RESEARCH

Fletcher (1957, p. 137) noted "726 industrial firms supported Outward Bound" in Britain, by sponsoring employees' and other students' participation in programs. These sponsors reported that 19% of their employees and students had received a promotion as a result of their participation in Outward Bound, and 22% of the employees and students confirmed this claim. Patterson (1969, p. 1) in a qualitative study of programs for industries at Outward Bound Australia found that "55% of sponsors believe that it lasts for life, 38% that it lasts for several years and only 7% that the influence is short lived."

Roland (1981) attempted to measure the impact of adventure training with 58 middle managers from two companies engaged in a three-day outdoor program focusing on team building and group problem solving through a ropes course experience. Three questionnaires measured managerial change in the participants as perceived by themselves, and as perceived by their 68 subordinates and 37 superiors. A fourth questionnaire measured participant learning. Subjects were pre-tested and then post-tested an average of 71 days later. The program took place between pre-test and post-test. Findings indicated that change took place on a number of managerial constructs, including time, planning, suggestions, human relations, trust, goals, group process, supervision, and feedback. Changes were speculated to have resulted from high levels of participant commitment and emotional involvement.

King and Harmon (1981) evaluated an early adventure course for an aerospace company. The purpose was to analyze personal beliefs, behaviors and professional attitudes of employees as a result of participating in the program. Graduates of a two-day in-house course called "Managing Personal Growth" (MPG) attended a four day Outward Bound (OB) course. Interviews were conducted with 33 employees selected from a stratified random sample of MPG graduates who attended the OB course. The researchers concluded that three major benefits were evident: greater self-confidence, increase in morale, and an enhanced a sense of teamwork, friendship and respect for coworkers in the company as a result of the experience. A major finding indicated that those who attended both the MPG and OB courses had lower turnover rates (1.7%) when compared to MPG only turnover rates (6.0%) and company-wide turnover rates (8.4%).

A few years later, Isenhart (1983) administered a 22 item questionnaire to 350 Outward Bound professional development program graduates. Of these, 140 (40%) were returned with findings that revealed that participants felt their personal behavior had changed (76.4%), their work behavior had improved as a result of having participated in their course (78.6%), and they were better able to handle work responsibilities as a result of their participation (88.6%). A more recent survey (Colorado Outward Bound School, 1988) of 274 alumni of the course, contacted to determine the effectiveness of their experience, suggested that a positive impact on professional and personal aspects of the participants was obtained. Responses concluded that the program was valuable in team building (96%), that it gave new insights into

leadership (86%), and that participants gained increased closeness to teammates (92%). Personal gains were evidenced in the areas of personal growth (92%), and extension of one's personal limits (86%). The program also was found to have value in building professional relationships (80%) and providing a fuller understanding of self (80%).

Galpin (1989) implemented a study to investigate the effects of a 3-day Outward Bound course for managers on a number of self-perceptions, including self-concept, hardiness, trust of others and involvement in group process. Sixty-four middle managers from a large hospital completed an impact survey and the Personal Views Survey. Data were gathered one month prior to the course, immediately at the start, upon completion, and one month after the course. Analysis of data revealed that participation in the adventure training program had a positive impact on the manager's self-concept and hardiness, with females affected to a greater degree than males, and with older managers affected more than younger ones. Changes were maintained during the follow-up month, with females retaining changes to a greater extent than males.

PRESENT RESEARCH

Baldwin, Wagner, and Roland (1991) conducted an evaluation on the effects of an outdoor challenge training program. The program included a series of group problem-solving initiatives common to most adventure-based training programs. Subjects in this study included 458 civilian employees and 13 supervisors from a military base. Two questionnaires were developed to collect relevant data on a variety of group and individual measures. Findings from the study suggested that outdoor challenge training had a moderate affect on group awareness and effectiveness and individual problem solving, as measured three months after the training. No significant changes were observed in trust or self-concept.

Dutkiewicz and Chase (1991) undertook a study of MBA students to measure empirically the changes that participants undergo following participation in an outdoor-based leadership training experience. A control group of 43 students and an experimental group of 41 students participated in the study, with the experimental group receiving treatment. Results indicated that the MBA students who participated in the outdoor-based training exhibited change in the domains of trust, confidence in peers, group clarity, group cohesiveness, group awareness, and group homogeneity. Lesser changes were noted in the measures of self-assessment and problem solving.

Attarian (1992) examined the effects of adventure training on the risk-taking propensity of corporate managers. A total of 57 managers representing service, manufacturing, and retail distributing companies participated in three, 5-day management training courses administered by Outward Bound. Subjects completed the Choice Dilemmas Questionnaire immediately before participation and 30 days after completion of the training program, with 87.6% returned. Data were subjected to product moment correlations in order to examine the relationships between a manager's age, experience, and risk-taking propensity; and to Analysis of Covariance (pretest as the covariate) to determine outcome differences across gender, management level, company type, and job role. The following were concluded: (a) a manager's age, years of employment, and risk-taking propensity were not highly correlated; (b) male and female managers did not differ in risk-taking propensity; (c) no differences in risk-taking propensity were evident among any management levels; and (d) no significant differences in risk-taking propensity were observed between the service company, manufacturing concern, and retail organization. Overall, subjects showed greater risk-taking propensity after the course through mean score comparisons; however, differences were not statistically significant at the .05 level of probability.

Quinn and Vogl (1992) examined the short term perceived benefits of a 20-hour program for 125 accounting firm employees. Clear improvements in communication with colleagues and conflict management were noted, along

with some gain in self-confidence and limited increases in trust, handling stress, and communication ability.

Wagner and Roland (1992) noted that the facilitator of these programs is a pivotal element of program quality. They compared the impact of "hard" versus "soft" skill facilitator competence on outcomes from a one day program for 369 civilian employees of a military agency. During the delivery of programs, facilitators (already holding appropriate hard skills) underwent additional soft skill development. Subjects participating in the latter days of programs had greater gains in group effectiveness than those participating prior to the soft skill upgrading of facilitators.

Miner (1993) conducted a study to compare the effectiveness of an isomorphic model of processing with a generic one on the team development of 50 employees, the entire workforce of a service sector company. Differences were also sought across the independent variables of gender and hierarchical position in the corporation. Although no significant differences were found between the two processing methods, teamwork did improve over the training period. Although small sample sizes prevented inferences among hierarchy levels, some differences in perceptions of teamwork were noted between men and women.

Bronson, Gibson, Kichar, and Priest (1992) compared two intact work groups (with equivalent levels of responsibility or function) cluster sampled from all divisions within an aerospace company. A control group of 11 managers received no treatment, while an experimental group of 17 managers underwent a three-day off-site adventure training program composed mostly of challenge course events and group initiative activities. Both groups completed the short version of the Team Development Inventory (TDI-s) about two months before and two months after the training. Both groups, relatively equivalent before, were significantly different after the program. While the control failed to show change over the study period, the experimental group improved on teamwork items related to group goals, genuine concern, effective listening, decision making, respect for diversity, high standards, recognition of ideas, encouragement for feedback. No improvements were noted for conflict resolution or offering assistance. Manager's comments supported the conclusion that team developments were due to the training program. Researchers recommended further study to examine trends in team development that take place over time and the effectiveness of teamwork transfer in corporate adventure training.

Smith and Priest (in press) determined that in order for team building programs to be effectively utilized back at the office, they should be conducted on intact work units, rather than on random samples of employees, and that company resources should be dedicated to encouraging practice of teamwork. Subjects (53 middle managers of a Canadian commercial distribution firm) were randomly selected and assigned to five groups. These groups rotated through 10 team building activities (trolleys, line-ups, all aboard, trust triads, trust falls, spider web, team triangle, cantilever, nitro crossing and traffic jam) during a one-day program. Subjects were tested three times with the medium version of the Team Development Inventory (TDI-m) during the program. The five groups showed significant improvement on all 25 items of the TDI-m, indicating that the program was effective in building functional teams from random individuals. Although the groups started with different perceptions of teamwork and evolved at different rates, by the end of the day they were relatively equivalent in their levels of teamwork. The varying rates of increase were attributed to the styles of the groups' respective facilitators. Recognizing that the treatment was effective, a 25% sub-sample of 15 subjects was purposely selected for interview, with proportionate representation of 3 subjects from each group (including advocates and skeptics alike). The open ended, half-hour long, tape recorded interviews were held a month later and asked about demographics, program highlights, learning applications, barriers to transfer of learning, and strategies for overcoming the bar-

riers. Fourteen subjects (7 male and 7 female) participated in the interviews. With a range of 5 to 10 years of experience in this company, subjects commonly responded that their learning highlight was that they could accomplish more than initially anticipated. They gained an awareness of cooperation, trust, conflict and communication, noted the importance of keeping everyone involved in a project, and recognized their own role in contributing to a team task. Subjects provided examples of applying new learning at work, but mentioned two principle barriers to transference: lack of participation by all employees in the program and lack of time for practicing new learning. In short, they attempted to practice functional team behaviors, but ran into resistance and opposition from coworkers who had not experienced the same program. In order to overcome these barriers in the future, they suggested involving intact units and providing time or other resources for practicing teamwork.

Priest and Lesperance (1994) conducted a study to examine the role of follow-up procedures in transfer and retention of teamwork. The upper management (vice-president, directors and area managers) from four intact work units (computing systems/data analysis or financial risk management) of a financial institution and a bank participated in an intensive 48 hour residential program (conducted over 3 days). A control group (n = 20), did not receive any training, and three experimental groups (n = 20, 15, and 20) received the program and three different follow-up procedures (no follow-up, self-chosen follow-up, and self-facilitating). Subjects were tested with the short version of the Team Development Inventory (TDI-s) during the program and four times afterwards (2 weeks, 4 weeks, 3 months, and 6 months). All four groups were relatively equivalent in the type of parent company, organizational functions, hierarchical structure, and scores on the TDI-s measured prior to the program. Afterwards, significant increases were evident on all ten items on the TDI-s for all three experimental groups, but not for the control group, indicating that the program brought about positive changes in teamwork. All three experimental groups experienced an immediate and slight drop in teamwork levels (measured two weeks later), which was attributed to the well-known "Post Group Euphoria" effect common to many adventure experiences. In relation to the three different follow-ups, the group not receiving any supportive procedures reverted to baseline control levels by the end of six months. After the same time period, the group involved with self-chosen strategies such as team meetings, refresher training, social gatherings, staff luncheons, and coaching sub-teams, maintained their levels of teamwork. Finally, the self-facilitating group was able to increase the levels of their team behaviors, building on successes and learning from setbacks at work, by the techniques of funnelling and guided reflection. The point about transfer or longevity of learning is driven home by this longitudinal research which suggests that any teamwork improvements from training may be lost after six months without support in the form of follow-up procedures.

Changes in the corporate culture of an Australian public service delivery company were measured by surveying a stratified (gender and management level) random sample of 100 managers from about 500 managers in a company of about 5,000 employees. A final total of 4,516 employees (everyone) participated in a five-day program consisting of group initiative tasks, high ropes courses, and evening lectures. All training was conducted over a one year period (July—June), and no other training schemes were underway at the time of study (Dec. 89—Dec. '91). Eighty three out of 100 managers responded to Section III of the Individual-Team-Organization (ITO) survey and the short form of the Organizational-Health (OH) survey three times (six months before the program, in the middle of the program, and six months after the program). Responses of the 83 managers, from all areas and levels of the organization, indicated that this particular company improved its planning utility, structure flexibility, systems functioning, sensible and supportive roles, positive relationships, excessive delays in workflow, reflection time, and mission and goal clarity

during the first year. Concern for getting the job done (rather than accounting for time and cost), alignment, marketplace impact, and profit versus growth decreased over the same period, although decreases were not seen as necessarily detrimental in this case, since the company moved through a desired period of well needed readjustment. During the second year, reflection time decreased, but work enjoyment improved, even though workloads increased over both years as a result of necessary readjustments. The experiential training program was attributed by company executive to have positively resulted in these cultural changes (Priest, 1992).

Motivational climate changes were also measured for the same Australian public service delivery company by surveying 81 out of 100 managers with two tests (six months before and six months after the year of training) of the Motivational Analysis of Organizations-Climate (MAO-C) survey. Overall, the organization became more flexible around rules, more willing to embrace or accept chaos as a valuable catalyst for change, more concerned with the needs or well being of employees and more relaxed around the concept of empowerment of individuals and teams. To some extent the organization became open around the disclosure of information or opinions and employees became comfortable around the idea of interacting with one another. Overall, managers perceived the company to have undergone dramatic changes, resulting in a new and completely different way of motivating its employees. In summary, this company was characterized as an organization motivated by "control-expert influence" and "control-dependency" orientations, before the training program. After the one year of corporate adventure training, in which all employees participated, those descriptors had shifted to "achievement-affiliation" and "achievement-extension" orientations. In other words, the company was transformed from an autocratic bureaucracy where rules reigned supreme to an empowered and team-oriented environment where people were valued. This was both the desire and intent of the company executive when they undertook the program. Although the entire transformation cannot be attributed solely to the adventure training (change may have be driven by environmental factors and financial necessity), the executive were convinced that the program was a powerful and supportive adjunct to their own efforts at making motivational climate changes (Priest, 1992).

Goldman and Priest (1991) examined the transfer of risk taking behaviors from adventure training to the workplace for 27 financial managers of a Canadian credit card corporation who were involved in the one day risk taking exercise of rappelling (the controlled descent of a cliff face by using ropes and rock climbing equipment). The hypothesis being tested was whether a brief, but powerful, adventure training session would alter the work-related perceptions of risk and propensity to take risks for these managers. The results of the study showed that the session did indeed positively affect employees' risk taking behaviors in the business setting. As would be expected with repeated rappelling descents, propensity levels began low, but increased as people became more comfortable with the descents and willing to try more risky ones. Perception of risk began high but decreased as experience was gained. These outcomes indicated that the treatment worked, probably by reducing anxiety and enhancing the desire to take risks. Subjects remarked that their new sense of self-confidence (acquired from rappelling) had been useful in changing their risk taking behaviors at work. Managers remarked that they felt supported by their peers and more willing to risk as a result of their "belay and backup." The terms used during the adventure session were being used in the culture of the organization to describe work situations which were metaphoric representations of their adventure.

A team of researchers (MacRea, Moore, Savage, Soehner,, & Priest, 1993) compared the effect of a standard ropes course experience and an isomorphic one on the risk taking behaviours of already high risk takers (male firefighters). The isomorphic experience was a modification of the standard one to be more "job-like" and an accurate metaphoric representation of real-life

fire fighting. For example, the high ropes course experience consisted of 8 elements built within a circle of six 40' tall utility poles (Two Line Bridge, Beam Walk, Criss Cross, Hebe Jebe, Swinging Log, Tension Traverse, Burma Bridge and Multivine). The standard program involved completing these elements in the order listed without structural alteration. The isomorphic program involved a different order with key modifications made to mirror the everyday situation faced by fire fighters: time limits to mimic limited oxygen supply pack, blindfolds representing a smoke filled room, and working closely with a safety buddy. Subjects were randomly assigned to 8 groups of 12. Four control groups (n = 37) did not receive a ropes course, two groups (n = 20) enjoyed the standard one, and two groups (n = 17) experienced the isomorphic modifications. All subjects were pre- and post-tested with the Choice Dilemma Survey, which outlined 10 scenarios associated with risk taking opportunities and asked subjects to disclose the odds (out of a possible 10) that they would consider acceptable before taking each risk. The control groups were not found to change significantly in their risk taking propensity. The standard and isomorphic ropes course groups significantly decreased their acceptable odds, indicating that their risk taking propensity had increased as a result of the ropes course program. However, no experimental groups were found to differ significantly on their post-test means, suggesting that neither type of ropes course experience was more effective than the other in changing risk taking propensity. Perhaps the ropes course was so powerful that the isomorphs were overshadowed, or the particular isomorphs were so weak as to make little difference in the fire fighters' risk taking.

Three years prior to participating in the program studied by Klint and Priest (in press), a major Canadian manufacturer formed several business planning teams called B-PLANs. B-PLANs were charged with the task of involving company employees in the running of the company, shifting the responsibility of the day-to-day operations and decisions from a higher management level to those who were closer to the actual operation and performance of the jobs. A cross-section or horizontal slice of 11 male employees on one B-PLAN participated in a single day program consisting of simple socialization games and typical group initiative tasks. Subjects were observed during the program and debriefs and were twice interviewed at their workplace (four days and four months later). Qualitative data were triangulated (seeking multiple and corroborative opinions about the same topic or issue), member checked (asking subjects to confirm that what was written about them was indeed accurate), and audited (by a second researcher). Subjects started the day as members of a very dysfunctional group, unable to accomplish many simple tasks, which grew into a group who felt that could handle any problem thrown at them. They moved from a starting point of not being able to organize themselves into lineups to a finishing point of being able to identify their own levels of challenge and successfully move everyone over "the wall" with concern for one another. By the end of the day, they were truly working together with a feeling of pride, and this continued on the job for up to four months. The single day of training was perceived by the subjects to be a strong metaphor for their efforts in formulating a business plan for the company. As a result of their brief but educational experience, the group realized better teamwork, improved interactions, increased trust, effective communication, and became willing to share in the roles and responsibilities of solving problems in small groups at work.

Priest (1995) found that using clients to belay one another in rock climbing develops trust between partners better than employing facilitators or technicians for this role (which may reduce partnership trust). An American manufacturing company was interested in developing a new partnership arrangement for workers by pairing them up to share responsibilities on assembly lines. A total of 192 workers (involved in parallel line functions of a four shift manufacturing process) were arranged into eight groups of 24 employees containing three ran-

domly assigned pairs of workers from each of the shifts. All eight groups participated in a one day program of rock climbing, where two groups were belayed by facilitators, two groups were belayed by technicians, two groups were belayed by clients (their partners), and the remaining two groups acted as controls. The Interpersonal Trust Inventory-partner version (ITI-p) was given four times: one month before treatment, one week before, one week after, and three months later. To account for possible pre-test effects, one group from the two groups in each of the four treatments completed an additional ITI-p instrument at the start and finish of the treatment. No pre-test effects or differences were found between groups with the same belayer type, therefore these two groups were combined into one for analysis. For overall trust and four of its five subscales, means for the client (self) belay groups rose significantly after the program and remained elevated three months later. However, means for the facilitator and technician belay groups dropped significantly after the program and remained lowered three months later. Obviously, having clients belay one another enhanced trust between partners, while employing others to belay diminished trust. No parallel patterns were found for believability. Apparently, these subjects perceived their partners to behave genuinely, regardless of belayer type used.

Priest (in press) found that ropes courses and group initiatives develop different trust subscales by different means. A Canadian entertainment company was interested in changing the view employees held toward the corporation, since recent events had created the potential for some angry and distrustful feelings between the organization and its membership. Five single day sessions (once a week with the same facilitators) of either group initiatives (nitro crossing, nuclear reactor, acid river, etc.) or high and low ropes course elements (multivine, criss cross, swinging log, etc.) were designed to restore trust within the corporate whole. The entire company work force (156 employees) was randomly assigned into three groups of 52. One group was a control, another received group initiatives only, and the last participated in high and low ropes only. The Interpersonal Trust Inventory-organizational version (ITI-o) was administered five times: one month before the program began, at the program start, middle, and end, and two months after the program finished. Both group initiatives and ropes courses were effective in improving overall trustworthiness toward the organization, and neither was found to be more effective than the other. Parallel increases were noted for believability, confidentiality and dependability sub-scales. However, the ropes course appeared to diminish acceptance of others' ideas, while group initiatives built acceptance. This may be due to the shared responsibility of problem solving in group initiative versus the possible avoidance of advice from others while individually engaged with the ropes course. Furthermore, the ropes course appeared to enhance encouragement of others' efforts, while group initiatives didn't influence encouragement. This may be due to the tendency of groups to offer support either from their empathy of having tried the ropes course or from their sympathy in imagining what it is like to attempt in front of others. Program providers interested in creating gains in trust toward an organization can apply either group initiatives, ropes courses or a combination of approaches to the need. If gains in accepting new ideas are preferred, then a design heavy in group initiatives is called for. On the other hand, if gains in encouraging effort are desired, then a design heavy in ropes courses is recommended.

In response to half a dozen fatal heart attacks in males over the age of 40 while on high ropes courses, Priest and Montelpare (1995) were able to predict (64% explained variance) the highest heart rates attained by middle aged males on one high ropes course, from their age, height, weight, body girths, the time it takes them to walk a mile and their heart rate after walking that mile. Eight groups of 12 subjects from a Canadian financial corporation engaged in one hour of physical measurement (basal heart rate, blood pressure, height, weight, body girths, cholesterol, maximum number of push-up, and the Rockport walking test). A three-hour high

ropes course session with 10 elements (two line bridge, beam walk, criss cross, heeby jeeby swinging log, tension traverse, burma bridge, multivine, pamper platform and pamper pole) followed. Subjects' heart rates on the ropes course were electronically monitored by a detector band placed around the chest and telemetered to a recording wrist watch. The highest heart rates attained ranged from 126 to 197, with an average of 167.1 beats per minute. Sixty-eight subjects (36 male, 32 female) completed all aspects of the study; however, a predictive formula was achieved only for males. This equation included six variables (entered in five regression steps), with a combined correlation coefficient of $R = 0.80$. The researchers believed that this approach should not take the place of medical screening procedures. Sedentary, middle-aged people and persons of any age with coronary risk factors (prior history or risk factors such as smoking, obesity, high blood pressure, sedentary lifestyle, etc.) are advised to have a physical examination if they intend to begin any exercise routine more vigorous than walking. However, this procedure can be an inexpensive and simple intermediary step to identifying possible problems prior to sending every participant for a maximum exercise or stress test.

FUTURE RESEARCH DIRECTIONS AND CONCERNS

In the past, most evidence supporting the efficacy of CAT and EBTD was testimonial and anecdotal description (Keslake & Radcliff, 1980). Recent research has established that such programs *can* be effective, but business authorities question the quality of many programs. Future studies must investigate the program elements that contribute to overall effectiveness. Given the breadth of benefits, scope of activities, and depth of program foci, these variations will be difficult to control. One recommendation for constancy is that programs should involve selecting a single construct (e.g., teamwork, the most common training and development goal), while varying other elements of the program such as length, facilitation, location, design, content, assessment, follow-up, etc. These projects ought to consider transfer of learning by being longitudinal, thus examining the maintenance as well as acquisition of benefits over time.

Several concerns exist when studying CAT or EBTD programs (Priest, Attarian, & Schubert, 1993). First, credible programs operate under the ethic of challenge by choice, which means subjects will always be voluntary (and possibly predisposed to change). The consequential lack of cynics and critics may limit the study's application. Second, an effective program is used with intact work units, so sampling cannot be random (random assignment or selection limits program quality). The best one can hope for is quasi-experimentation.

Third, having small groups of eight to twelve people, typical of CAT or EBTD programs, means that variable distributions will likely be abnormal or discrete and require nonparametric procedures (distribution-free tests), which are generally less well accepted than parametric statistics. Fourth, this concern of small sample sizes cannot be overcome by combining several groups with the exact same adventure, because effective programs customize content to best meet the clients needs. If the program gets modified to suit the research, then the program suffers; if the reverse is true, then the research suffers.

Fifth, obtaining clean control groups (those not engaged in a program) is extremely difficult, because the experimental groups (those involved with the adventure) can often "contaminate" the purity of the controls by sharing experiences outside the study. Since the best controls are selected from the same situation as the experimentals, one can expect them to interact at work and thus change the way they respond to measurement methods. Sixth, the phenomena studied in adventure programs are primarily human qualities and are not easily measured in a quantitative manner. Since few valid and reliable instruments exist, the use of qualitative methods to measure qualities appears more logical.

Seventh, some programs and their clients do not want to be studied, in case someone should discover that they are ineffective in some way and spending lots of money for nothing. Eighth, research and evaluation can interfere with running a smooth program by interrupting learning processes, by preventing full participation, and by costing additional time or money (Cacioppe & Adamson, 1988). Few ethical research studies on CAT and EBTD programs can be made totally unobtrusive.

In addition to these eight concerns, this author and other researchers are worried about the amount of poor research that gets communicated to an ignorant public, now hungry for any results that help them prove their points. Without a sound grounding in research theory, philosophy, or practice, they accept everything as gospel, without critically examining its merit and application. Many consumers of research begin to distrust most studies. Some producers of research become reluctant to share their findings for fear of misinterpretation or exaggeration. A few academics try to widen the gap away from practitioners as a means to protect the sanctity of their work. In an effort to partially bridge this gap, the following are four recommended ethical guidelines for conducting research on CAT and EBTD programs.

First, ethical research operates with informed consent under a "challenge by choice" philosophy, just like ethical adventure programs. In almost all cases (except where deception or concealment are both justified and necessary), subjects must have the risks and responsibilities of the study explained to them verbally or in writing. Subjects should provide signed consent (verbal agreement to participate is acceptable in general public surveys, but not in experiments where subjects are assigned to treatment or control groups). Warning and informing prior to signature, ought to include the sponsoring institution, project title, researcher's names and contacts, a description of the study, inherent risks, benefits expected and safeguards employed.

Second, researchers should protect subjects' rights. The two rights of "only answering question they wish to" and "being able to withdraw from the study at any time without penalty" must be clearly communicated to all subjects. A copy of the results should be given to those subjects who request one. Guarantee of confidentiality must be made by stating that individual responses will not be named, but instead will be reported in aggregate or averaged forms. Real names will be changed to protect subjects and the names of organizations (such as provider and consumer names, even with their permission) will be withheld for reasons of anonymity. These rights are important in all human subject research, but are similarly critical in CAT and EBTD programs where some subjects may be concerned about potential career limiting situations.

Third, researchers should resist the temptation to over-generalize. Generalization is frequently delimited to a particular program or training treatment and limited by flaws in the study. All research or evaluation is flawed to some extent, and people who fail to acknowledge the obvious flaws in their work are claiming credibility of research and evaluation which simply does not exist and may even be willingly misrepresenting the authenticity of their studies.

Fourth, the purpose of a peer review or refereeing process, prior to publication in scholarly or academic journals, is to draw attention to these possible flaws and to either improve marginal studies or prevent poor studies from getting published. Therefore, researchers would be unwise to release research or evaluation in prepublication manuscript form to anyone other than producers of research and evaluation. The latter are assumed to have the abilities to discern flaws and limitations, while novice consumers of research and evaluation (such as practitioners or the media) may not have such competence. To prevent this, researchers have the ethical obligation to correctly interpret their work in order to make it understandable for the layperson. Lastly, if a study fails to find significant change, differences or relationships, this should never be interpreted as the fact that none ever existed.

They simply were not detected in this particular instance. Hopefully, these recommendations can help guide the future of research on CAT and EBTD programs.

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